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Associations with 30-day Survival following ECMO in Patients with Acute STEMI and Profound Cardiogenic Shock

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BackgroundLimited data are available regarding the role of percutaneous cardiopulmonarysupport for the treatment of ST segment elevation myocardial infarction (STEMI)with profound cardiogenic shock(CS).This study aimed to identify the determinantfactors for survival of patients with STEMI who underwent extracorporeal membraneoxygenation(ECMO) support.MethodFrom January 2005 to December 2013,192 patients experienced STEMI with CSneeded intra-aortic balloon pumping and support with vasoactive agents at ourhospital. Among them, 51 patients experienced profound CS and needed ECMOsupport. General demographics, timing of primary percutaneous intervention,infarcted territory, characteristics of coronary artery disease were compared betweenthe ECMO survival and ECMO non-survival group. Univariate and multivariate Coxregression analyses were performed to identify the associations with 30-day mortalitypost-ECMO.ResultsThe average age of the 51 patients with profound CS was 59.18 years, and88.2% of the patients were men. 31 patients survived the 30-day follow-up period. Inthe multivariate Cox regression analysis, higher body mass index (BMI) level, longerdoor-to-balloon time, higher serum blood urea nitrogen (BUN) level, and lower 24-hlactic acid clearance were associated with 30-day mortality post-ECMO. Receiveroperating characteristic curves revealed the cut-off points for the BMI greater than 24.30 andserum BUN greater than 17.50 mg/dL in the best sensitivities and specificities ($p = 0.004$ and $p= 0.031$; respectively).ConclusionsLonger door-to-balloon time, higher BMI, higher serum BUN level, and poorer lacticacid clearance following ECMO setting for patients with STEMI and profound CScould predict 30-day clinical outcomes.